

WHAT IS CLAIMED IS:

1. A spark plug comprising:
a central electrode;
an insulator provided outside said central electrode;
5 a main metal shell provided outside said insulator; and
a ground electrode provided to oppose to said central
electrode to define a spark discharge gap;

wherein a surface of said main metal shell is coated with
a complex chromate coat that contains a chromium component
10 comprising at least 90wt% of trivalent chromium and at least
one component of a phosphorus component in an amount of 1 to
15wt% as calculated for PO_4 and a silicon component in an amount
of 5 to 75 wt% as calculated for SiO_2 as cationic components.

15 2. The spark plug according to claim 1, wherein the surface
of said main metal shell is coated with the complex chromate
coat that contains the chromium component comprising at least
90wt% of trivalent chromium and the phosphorus component in an
amount of 1 to 15wt% as calculated for PO_4 .

20 3. The spark plug according to claim 1, wherein said
complex chromate coat contains a phosphorus component dispersing
chromate layer in which the phosphorus component is dispersed
in a trivalent chromium based compound, said phosphorus component
25 being present in an amount of 2 to 15 wt% as calculated for PO_4 .

4. The spark plug according to claim 1, wherein the chromium component comprising at least 90wt% of trivalent chromium and the phosphorus component in an amount of 5 to 10wt% as calculated for PO_4 .

5. The spark plug according to claim 1, wherein the surface of said main metal shell is coated with the complex chromate coat that contains the chromium component comprising at least 90wt% of trivalent chromium and the silicon component in an amount of 5 to 75 wt% as calculated for SiO_2 as cationic components.

6. The spark plug according to claim 3, wherein said complex chromate coat contains a silicon component dispersing chromate layer having such a structure that the silicon component is dispersed in a trivalent chromium based compound, said silicon component being present in an amount of 10 to 40 wt% as calculated for SiO_2 .

7. The spark plug according to claim 4, wherein said silicon component dispersing chromate layer contains the phosphorus component in an amount of 1 to 15 wt% as calculated for PO_4 .

8. The spark plug according to claim 1, wherein the chromium component comprising at least 90wt% of trivalent chromium and the silicon component in an amount of 10 to 40 wt% as calculated for SiO_2 as cationic components.

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9. The spark plug according to any one of claims 1 to 8, further comprising an annular gasket to be fitted around the basal end portion of a mounting threaded section formed on a peripheral surface of said main metal shell, at least a part of the surface of said gasket being coated with said complex chromate coat.

10 10. The spark plug according to any one of claims 1 to 9, which, when subjected to "5. Neutral Salt Spray Test" according to the plate corrosion resistance test procedure specified in JIS H8502, can withstand for at least 40 hours before at least about 20% of the whole surface is coated with white rust due to corrosion of a zinc plate coat.

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11. The spark plug according to any one of claims 1 to 10, which, when subjected to "5. Neutral Salt Spray Test" according to the plate corrosion resistance test procedure specified in JIS H8502 after heating at 200 °C for 30 minutes
20 in air atmosphere, can withstand for at least 40 hours before at least about 20% of the whole surface is coated with white rust due to corrosion of a zinc plate coat.

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12. A method for producing a spark plug comprising a central electrode, an insulator provided outside said central electrode, a main metal shell provided outside said insulator and a ground electrode provided to oppose to said central

electrode to define a spark discharge gap, said method including a chromating step which comprises immersing said main metal shell into a chromating bath containing phosphoric acid or a phosphate so as to form a phosphorus component dispersing chromate coat on the surface of said main metal shell, at least 90 wt% of the chromium component in said coat being trivalent chromium and the phosphorus component from said phosphoric acid or phosphate being present in an amount of 2 to 15 wt% as calculated for PO_4 .

10 13. A method for producing a spark plug comprising a central electrode, an insulator provided outside said central electrode, a main metal shell provided outside said insulator and a ground electrode provided to oppose to said central electrode to define a spark discharge gap, said method including
15 a chromating step which comprises immersing said main metal shell into a chromating bath containing an alkali silicate so as to form a silicon component dispersing chromate coat on the surface of said main metal shell, at least 90 wt% of the chromium component in said coat being trivalent chromium and the silicon component
20 from said alkali silicate being present in an amount of 10 to 40 wt% as calculated for SiO_2 .

14. The method for producing a spark plug according to claim 13, wherein said chromating bath also contains phosphoric
25 acid or a phosphate and said silicon component dispersing chromate coat is such that the phosphorus component from said

phosphoric acid or phosphate is present in an amount of 1 to 15 wt% as calculated for PO_4 .

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